

Pollution Prevention for the Lithographic Printers

Pollution Prevention is good business!

Pollution prevention or P2 is about generating less waste and pollutants and increasing efficiency. P2 cost-effectively solves many pollution-related problems associated with waste generation, discharges, and emissions. Every printer employs some pollution prevention techniques discussed in this brochure. Printers may call these techniques simply “good business practices” or “standard operating procedures.” The purpose of this brochure is to provide a brief checklist to help printers identify additional opportunities for improvement.

What is P2?

P2 is the use of materials, processes, or practices that reduce or eliminate the generation of pollutants or wastes at the source. Include in this definition are practices that reduce the use of materials, energy and water, and practices that, by improving efficiency, indirectly protect natural resources.

Six reasons why you should be interested in P2

1. Reduce material use and cost.
2. Cut waste disposal cost.
3. Improve operations and efficiency.
4. Help comply with environmental regulations.
5. Reduce wastewater discharge and air emissions.
6. Reduce liability and associated costs.

P2 in lithographic printing

P2 techniques apply to your facility's general operations and each step of the printing process including prepress, press, and postpress. These techniques involve using fewer toxic materials, installing equipment that increases efficiency by reducing raw materials use and waste, and by reuse and recycling practices.

Making changes in your facility requires the understanding and commitment of managers and employees. Therefore, the techniques described in this brochure should be started with a program to inform, train, and involve all the employees.

Facility Operations

Segregate wastes to increase recyclability.

Keep careful records of inventory.

Start a “first-in, first-out” policy of chemicals products use. Do not order more than can be used within the shelf life of the product. Labels and expiration dates should be legible.

Designate one person to manage raw materials for proper inventory control and to ensure that hazardous substances are properly contained and labeled and that a Material Safety Data

Sheet (MSDS) is on file for each.

Reduce spills and use dry methods for cleanups when possible. If a spill of a hazardous substance occurs, use a rag or an absorptive material to soak it up and dispose of it according to local, state, and federal regulations.

Be innovative in trying new procedures and products, including recycled paper with a high post-consumer content.

Conserve energy by using energy-efficient lights and equipment. Turn them off when not in use.

Conserve water by installing water saving devices, reusing water and using only what is need.

Prepress

Use computers to set up and edit jobs to produce proofs for clients' approval. This technique reduces photo processing wastes because "soft proofing" on a computer is possible.

Employ photographic intensifiers that do not contain mercury or cyanide salts.

Use silverless films, such as electrostatic films, that have speeds and resolution comparable to silver films.

Reduce unnecessary photographic chemical change outs by monitoring bath solutions closely.

Install automatic wash baths that save water and reduce waste by turning on waste water only when film is being processed.

Use squeegees or rollers between baths to remove residual fluid from the film before it is placed in the next bath. This prevents bath contamination and reduces material use.

Employ silver recovery units "in-line" to extend the life of the developer and to help meet wastewater discharge limits.

Contract with a hauler to send used film and film scraps, developers, and recovered silver off-site for silver recycling.

Use presensitized plates that only generate small volumes of spent developer (usually nonhazardous) and are reusable.

Employ aqueous plate making to reduce or eliminate the use of hazardous developers and fixers. Discharging wastewater from the aqueous process may be possible directly to the sanitary sewer.

Consider new processes techniques and like electronic image processing (e.g., desktop publishing, digital cameras, direct-to-plate, direct-to-press, and digital proofing) to reduce or

eliminate prepress waste.

Press

Maximize use of vegetable-based and ultra violet inks that significantly reduce or eliminate VOC emissions. Soy-based inks with 1% VOC content are available. These inks reduce air emissions and improve workplace safety.

Select inks that reduce the use of metallic pigments.

Try fountain solutions that do not contain isopropyl alcohol (IPA) to eliminate or significantly reduce VOC emissions and reduce employee exposure to toxics.

Use low - VOC and citrus-based solvents that generate less air emissions.

Buy recycled solvents. They cost about the same as virgin solvents and may work as well for many uses.

Install an automatic ink leveler to ensure that ink is evenly distributed in the ink fountain or tray.

Gang print or run similar jobs simultaneously to reduce waste generation between cleanups and starting the next run.

Look into waterless presses that require no fountain solution or water.

Refrigerate fountain solutions to maintain solution concentration by reducing evaporation or volatility. VOC emissions are reduced. This may not be practical for smaller printers.

Postpress

Use hot part washers or solvent sinks to clean removable parts. Ask for non-chlorinated solvents if sinks are used.

Use dirty solvents or low VOC cleaners for an initial wipe down of press equipment, followed by final wipe down using higher VOC solvents.

Launder shop towels. Clean towels are obtained from laundry service. Purchasing new rags is reduced. Laundry service may not accept highly contaminated rags. These rags may be considered hazardous waste.

Use excess ink that has not been “on the press” for future jobs, or mix it together to create a “shop black.”

Recycle ink. If possible, purchase inks from a distributor who will take or buy back unused inks.

Recycle press cleanup solvents. If large amounts used, an on-site recovery system may be practical.

Find recyclers for press lubricating oils. These wastes are often collected by recyclers that handle solvents.

Trade Associations

Trade associations like the Printing Industries Association of Arizona (PIAA), are sources for information on new procedures, equipment and products. Call the PIAA at (602) 265-7742.